

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method comprising:

receiving an input for a pattern, the pattern comprising a plurality of features ~~included~~enclosed within a boundary of a CAD geometry piece where a feature corresponds to a feature of the CAD geometry piece;

receiving an indication of modification to the CAD geometry piece;
automatically modifying the CAD geometry piece and its boundary based at least upon the received indication; and

automatically maintaining continuous enclosure of the pattern within the boundary of the modified CAD geometry piece, including automatically modifying at least one of the pattern or the plurality of features to be continuously ~~included~~enclosed within the boundary of the modified CAD geometry piece, based at least upon the modified CAD geometry piece and the received input.

2. (Original) The method of claim 1, wherein said receiving the input comprises receiving an input corresponding to an indication of a direction, the indication having an X- component and a Y-component.

3. (Previously presented) The method of claim 1, wherein:

said receiving the input includes receiving a boundary value, the boundary value having at least one of a maximum value and a minimum value defining a maximum and a minimum, respectively, for a distance between at least one feature and the boundary; and

automatically modifying at least one of the pattern or the plurality of features includes

maintaining a distance between the at least one feature and the boundary within the boundary value.

4. (Original) The method of claim 1, wherein said receiving the indication of modification comprises receiving an indication of modification to a 2-D geometry piece parametrically defining the CAD geometry piece.
5. (Original) The method of claim 4, wherein said receiving the modification to the geometry comprises receiving an indication of modification of a dimension of the 2-D geometry piece parametrically defining said CAD geometry piece.
6. (Original) The method of claim 1, wherein said receiving the input comprises receiving an indication to optimize the pattern.
7. (Original) The method of claim 1, wherein said automatically modifying the CAD geometry piece comprises parametrically updating the CAD geometry piece.
8. (Previously presented) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features comprises automatically determining what modification, if any, is necessary to one or more dimension of at least one of the plurality of features.
9. (Previously presented) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features comprises automatically determining what modification, if any, is necessary to an inter-feature distance between each of the plurality of features, and changing the inter-feature distance between at least one feature and an adjacent feature upon determining the modification is necessary.
10. (Canceled)
11. (Previously presented) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features comprises:

automatically determining what modification, if any, is necessary to a first dimension in view of a determined modification to a second dimension, to maintain a relationship between said first and second dimensions, where the first dimension and the second dimension comprise first and second dimensions of each feature of the plurality of features, and

modifying at least one of the first dimension or the second dimension of each feature of the plurality of features.

12. (Currently amended) An apparatus comprising:

a storage medium having stored therein a plurality of programming instructions, which when executed, the instructions cause the apparatus to:

receive an input corresponding to generation of a pattern in a computer aided design (CAD) geometry piece, the pattern comprising a plurality of features ~~included-enclosed~~ within a boundary of the CAD geometry piece where a feature corresponds to a feature of the CAD geometry piece;

receive an indication of modification to the CAD geometry piece;

automatically modify the CAD geometry piece and its boundary based at least upon the received indication; and

automatically maintain continuous enclosure of the pattern within the boundary of the modified CAD geometry piece, including instructions, which when executed, cause the apparatus to automatically modify at least one of the pattern or the plurality of features to be continuously ~~included-enclosed~~ within the boundary of the modified CAD geometry piece, based at least upon the modified CAD geometry piece and the received input; and

a processor coupled to the storage medium to execute the programming instructions.

13. (Original) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to receive an input corresponding to an indication of a direction, the indication having an X-component and a Y-component.

14. (Canceled)

15. (Previously presented) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to:

receive a boundary value, the boundary value having at least one of a maximum value and a minimum value defining a maximum and a minimum, respectively, for a distance between at least one feature and the boundary, and

maintain a distance between the at least one feature and the boundary within the boundary value.

16. (Original) The apparatus of claim 15, wherein said programming instructions, which when executed, cause the apparatus to receive an indication of modification of a dimension of the 2-D geometry piece parametrically defining said CAD geometry piece.

17. (Original) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to receive an indication to optimize the pattern.

18. (Original) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to parametrically update the CAD geometry piece.

19. (Previously presented) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to automatically determine what modification, if any, is necessary for various dimensional sizes of each of the plurality of features.

20. (Previously presented) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to automatically determine what modification, if any, is necessary to an inter-feature distance between each of the plurality of features, and changing the inter-feature distance between at least one feature and an adjacent feature upon determining the modification is necessary.

21. (Previously presented) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to automatically determine what modification, if any, is necessary to a dimension to conform to a user specified input.

22. (Previously presented) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to automatically determine what modification, if any, is necessary to a first dimension in view of a determined modification to a second dimension, to maintain a relationship between said first and second dimensions, where the first dimension and the second dimension comprise first and second dimensions of each feature of the plurality of features, and

modifying at least one of the first dimension or the second dimension of each feature of the plurality of features.

23. (Currently amended) An article of manufacture having stored therein plurality of programming instructions, which when executed, the instructions cause a machine to:

receive an input for a pattern, the pattern comprising a plurality of features included enclosed within a boundary of a CAD geometry piece where a feature corresponds to a feature of the CAD geometry piece;

receive an indication of modification to the CAD geometry piece;

automatically modify the CAD geometry piece and its boundary based at least upon the received indication; and

automatically maintain continuous enclosure of the pattern within the boundary of the modified CAD geometry piece, including instructions, which when executed, cause the machine to automatically modify at least one of the pattern or the plurality of features to be continuously included enclosed within the boundary of the modified CAD geometry piece, based at least upon the modified CAD geometry piece and the received input.

24. (Original) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to receive an input corresponding to an indication of a direction, the indication having an X-component and a Y-component.

25. (Previously presented) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to:

receive a boundary value, the boundary value having at least one of a maximum value

and a minimum value defining a maximum and a minimum, respectively, for a distance between at least one feature and the boundary, and

maintain a distance between the at least one feature and the boundary within the boundary value.

26. (Original) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to receive an indication of modification to a 2-D geometry piece parametrically defining the CAD geometry piece.

27. (Previously presented) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to receive an indication of modification of a dimension of the 2-D geometry piece parametrically defining said CAD geometry piece.

28. (Original) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to receive an indication to optimize the pattern.

29. (Original) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to parametrically update the CAD geometry piece.

30. (Previously presented) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to automatically determining what modification, if any, is necessary for various dimensional sizes of each of the plurality of features.

31. (Previously presented) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to automatically determine what modification, if any, is necessary to an inter-feature distance between each of the plurality of features, and changing the inter-feature distance between at least one feature and an adjacent feature upon determining the modification is necessary.

32. (Previously presented) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to automatically determine what modification, if any, is necessary to a dimension to conform to a user specified input.

33. (Previously presented) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to:

automatically determine what modification, if any, is necessary to a first dimension in view of a determined modification to a second dimension, to maintain a relationship between said first and second dimensions, where the first dimension and the second dimension comprise first and second dimensions of each feature of the plurality of features, and

modify at least one of the first dimension or the second dimension of each feature of the plurality of features.

34. (Previously presented) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features includes removing one or more features from the pattern.

35. (Currently amended) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features includes adjusting a distance between at least one feature and the boundary such that the plurality of features are continuously includedenclosed within the boundary.

36. (Previously presented) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to automatically modify at least one of the pattern or the plurality of features include programming instructions, which when executed, cause the apparatus to remove one or more features from the pattern.

37. (Currently amended) The apparatus of claim 12, wherein said programming instructions, which when executed, cause the apparatus to automatically modify at least one of the pattern or the plurality of features include programming instructions, which when executed, cause the

apparatus to adjust a distance between at least one feature and the boundary such that the plurality of features are continuously includedenclosed within the boundary.

38. (Previously presented) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to automatically modify at least one of the pattern or the plurality of features include programming instructions, which when executed, cause the machine to remove one or more features from the pattern.

39. (Currently amended) The article of manufacture of claim 23, wherein said programming instructions, which when executed, cause the machine to automatically modify at least one of the pattern or the plurality of features include programming instructions, which when executed, cause the machine to adjust a distance between at least one feature and the boundary such that the plurality of features are continuously includedenclosed within the boundary.